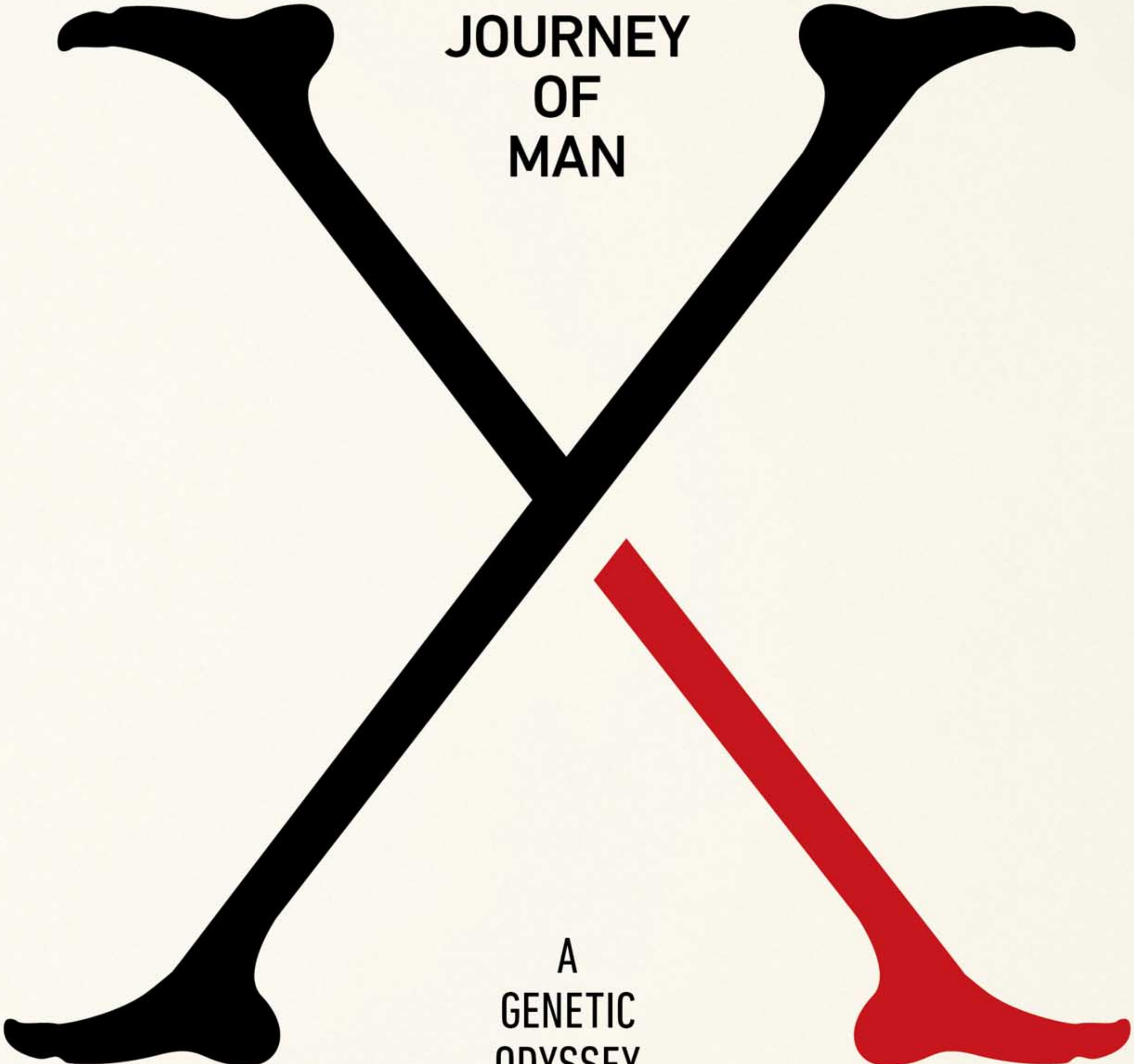


THE JOURNEY OF MAN

A GENETIC ODYSSEY

基 因 的 奥 德 赛 之 旅

人类的旅程

[美] 斯宾塞·韦尔斯（Spencer Wells）——著 张涛 严墨——译

中信出版集团

[illegible]

[illegible]

[illegible]

[illegible]——[illegible]DNA[illegible]10[illegible]

[illegible]DNA[illegible]“[illegible]”[illegible]

[illegible]——[illegible]

[illegible]

[illegible]“[illegible]”[illegible]——[illegible]

[illegible][1][illegible]Y[illegible]Y[illegible]

[illegible]“[illegible]”[illegible]·[illegible]Richard Lewontin[illegible]

[illegible]DNA[illegible]·[illegible]-[illegible]Luca CavalliSforza[illegible]20[illegible]90[illegible]

[illegible]4000[illegible]

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[2] Dream time□□□□□□□□□□□□□□□□□□□□□□“□□□□”“□□□□”□□□□□□□□□□□□□□□□□□□——□□□

[illegible]

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——[illegible]·[illegible]1:27—8

[illegible]“[illegible]”——[illegible]

[illegible]5[illegible]Androphagi[illegible][1][illegible]

[illegible]0[illegible]0[illegible]1000[illegible]

[illegible]Bantu language[illegible]——[illegible]

Hadza

[1] [illegible]——[illegible]

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1860□6□30□□□□□□□□□□□·□□□□□Samuel Wilberforce□□6000□□□□□□□4004□10□23□□□

□□·□□□Joseph Hooker□□□□□·□□·□□□□Thomas Henry Huxley□□□□□□□□□□□□□□□□□□□·□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□“□□□□□□”□Darwin’s Bulldog□□

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[illegible]·[illegible][1][illegible]1831[illegible]

[illegible]Erasmus[illegible]“[illegible]”[illegible]

19[illegible]——[illegible]“[illegible]”[illegible]uniformitarianism[illegible]·[illegible]Charles Lyell[illegible]“[illegible]”[illegible]“[illegible]”[illegible]catastrophists[illegible]·[illegible]Louis Agassiz[illegible]

[illegible]“[illegible]”[illegible]“[illegible]”[illegible]

[illegible]FitzRoy[illegible]“[illegible]”[illegible]

[illegible]

[illegible]5[illegible]*The Voyage of the Beagle*[illegible]19[illegible]1860[illegible]

[illegible]30[illegible]——[illegible]——[illegible]

1831[illegible]12[illegible]27[illegible]1836[illegible]10[illegible]2[illegible]gauchos[illegible]

[illegible]“[illegible]……[illegible]”[illegible]“[illegible]”[illegible]

[illegible]5[illegible]“[illegible]”[illegible]Fuegia Basket[illegible]“[illegible]”[illegible]Jemmy Button[illegible]“[illegible]”[illegible]York Minster[illegible]Yokcushlu[illegible]Orundellico[illegible]

El’leparu[illegible]“[illegible]”[illegible]

[illegible]“[illegible]……”

[illegible]150[illegible]DNA[illegible]

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[1] [illegible]·[illegible]Josiah Wedgwood[illegible]——[illegible]

……[illegible]

[illegible]“[illegible]”[illegible]20[illegible]18[illegible]·[illegible]·[illegible]*Homo sapiens*[illegible]

[illegible]*afer*[illegible]*americanus*[illegible]*asiaticus*[illegible]*europaeus*[illegible]*monstrosus*[illegible]

[illegible]*The Descent of Man*[illegible]“[illegible]”[illegible]

19[illegible]“[illegible]”[illegible]

·

· ·

Stephen Jay Gould

· Carleton Coon 20

60 *The Origin of Races*

The Living Races of Man

American Association of Physical Anthropology

· AlešHrdlička

1917 *American Journal of Physical Anthropology* ——

[illegible]“[illegible]”[illegible]——[illegible]

[illegible]

19[illegible]“[illegible]”[illegible]

[illegible]·[illegible]Paul Broca[illegible]——[illegible]——[illegible]

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[illegible]“[illegible]”[illegible]·[illegible]“[illegible]”[illegible]19[illegible]“[illegible]”[illegible]

[illegible]“[illegible]”[illegible]Talmud[illegible]

19[illegible]“[illegible]”[illegible]

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[illegible]20[illegible]60[illegible]

[illegible]

[illegible]

——T.S.[illegible]T.S.Eliot[illegible]“Little Gidding”[illegible]

[illegible]*Four Quartets*[illegible]

[illegible]20[illegible]“[illegible]”[illegible]——[illegible]

[illegible]——[illegible]——[illegible]polymorphisms[illegible]“[illegible]”[illegible]

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[illegible]Hirszfelds[illegible]1919[illegible]A[illegible]B[illegible]A[illegible]B[illegible]A[illegible]B[illegible]

20[illegible]30[illegible]Bryant[illegible]Mourant[illegible]30[illegible]A[illegible]B[illegible]O[illegible]1954[illegible]*The Distribution of the Human Blood Groups*[illegible]20[illegible]

[illegible]·[illegible]1972[illegible]

[illegible]·[illegible]

[illegible]

[illegible]*Evolutionary Biology*[illegible]——[illegible]——[illegible]plnp[illegible]

[illegible]——[illegible]“[illegible]”[illegible]

[illegible]85%[illegible]7%[illegible]“[illegible]”[illegible]8%[illegible]

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[illegible]30[illegible]85%[illegible]85%[illegible]“[illegible]”[illegible]19[illegible]30[illegible]“[illegible]”[illegible]

[illegible]

[illegible]

[illegible]mutation[illegible]DNA[illegible]30[illegible]30[illegible]·[illegible][1][illegible]

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[illegible]50%[illegible]70%[illegible]

[illegible]20[illegible]

[1] [illegible]·[illegible]Heath Robinson[illegible]1872—1944[illegible]——[illegible]

[illegible]

[illegible]·[illegible]-[illegible]-[illegible]Buzzati-Traverso[illegible]-[illegible]the Dobzhansky school of genetic[illegible]·[illegible]Theodosius Dobzhansky[illegible]·[illegible]20[illegible]“[illegible]”[illegible]“[illegible]”[illegible]

[illegible]-[illegible]“[illegible]”[illegible]20[illegible]50[illegible]DNA[illegible]-[illegible]——[illegible]

[illegible]——[illegible]

[illegible]20[illegible]50[illegible]“[illegible]”[illegible]“[illegible]”[illegible]“[illegible]”[illegible]Motto Kimura[illegible]-[illegible]“[illegible]”[illegible]

[illegible]“[illegible]”[illegible]“[illegible]”[illegible]“[illegible]”——[illegible]50%[illegible]70%[illegible]70%[illegible]

[illegible]“[illegible]”[illegible]

“[illegible]”

[illegible]William of Ockham[illegible]1285—1349[illegible]“[illegible]”[illegible]Ockham’s razor[illegible]pluralitas non est ponenda sine necessitate[illegible]

[illegible]“[illegible]”[illegible]simplify[illegible]——[illegible]

[illegible]A[illegible]B[illegible]——[illegible]“[illegible]”[illegible]

[illegible]·[illegible]-[illegible]·[illegible]1964[illegible][1][illegible]“[illegible]”[illegible]

[illegible]

[illegible]-[illegible]15[illegible]-[illegible]“[illegible]”[illegible]700[illegible][2]

[illegible]-[illegible]·[illegible]Walter Bodmer[illegible]1971[illegible]4.1[illegible]3.3[illegible]2.1[illegible]

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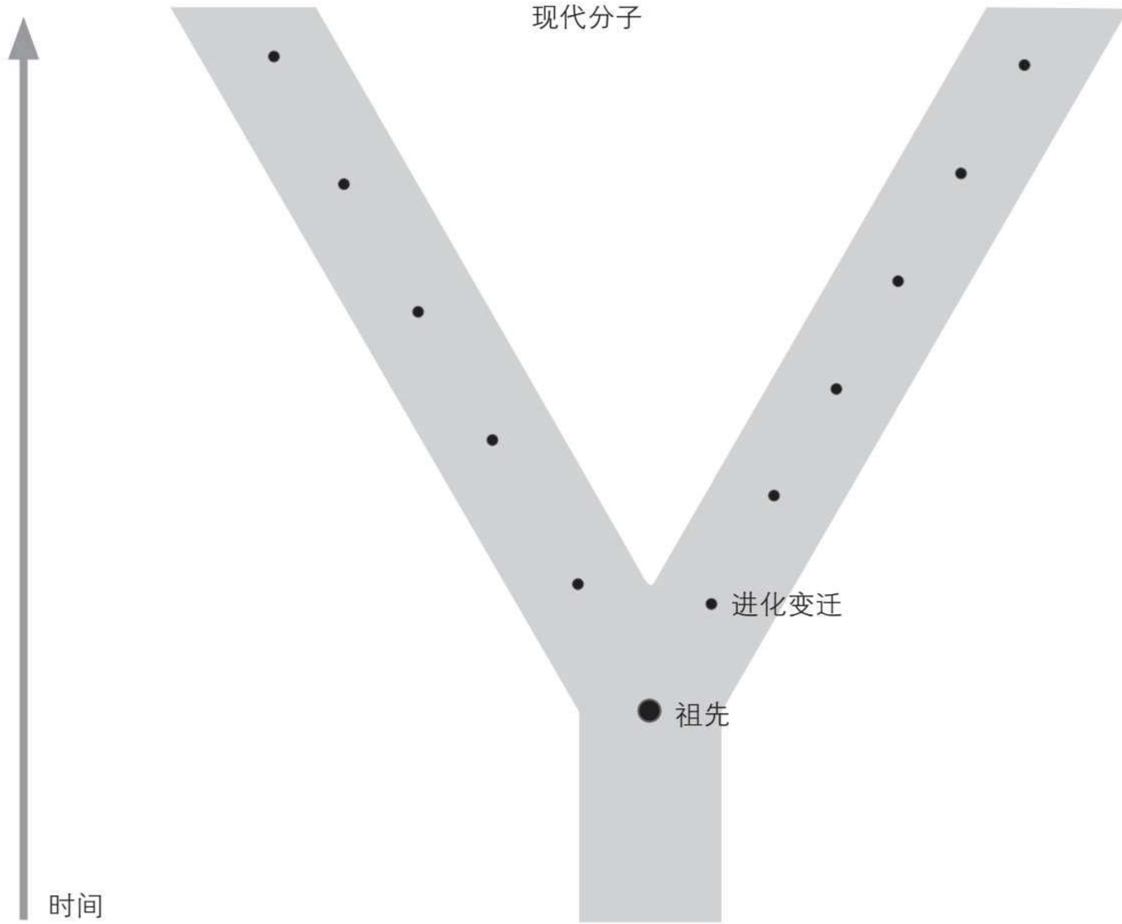
[2] [illegible]-[illegible]——[illegible]

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[illegible]1 [illegible]

[illegible]DNA[illegible]DNA[illegible]DNA[illegible]DNA[illegible]DNA[illegible]20[illegible]70[illegible]·[illegible]Walter Gilbert[illegible]·[illegible]Fred Sanger[illegible]DNA[illegible]1977[illegible]DNA[illegible]2000[illegible]2000[illegible]DNA[illegible]

[illegible]

[illegible]20[illegible]80[illegible]——[illegible]20[illegible]80[illegible]

[illegible]·[illegible]Allan Wilson[illegible]——[illegible]DNA[illegible]

[illegible]DNA[illegible]DNA[illegible]——[illegible]DNA[illegible]DNA[illegible]23[illegible]30[illegible]A[illegible]C[illegible]G[illegible]T[illegible]

[illegible]50:50[illegible]——[illegible]DNA[illegible]

[illegible]

[illegible]——[illegible]1000[illegible]1[illegible]

[illegible]DNA[illegible]

[illegible]20[illegible]80[illegible]1000[illegible]1[illegible]100[illegible]1[illegible]A[illegible]B[illegible]A[illegible]B[illegible]

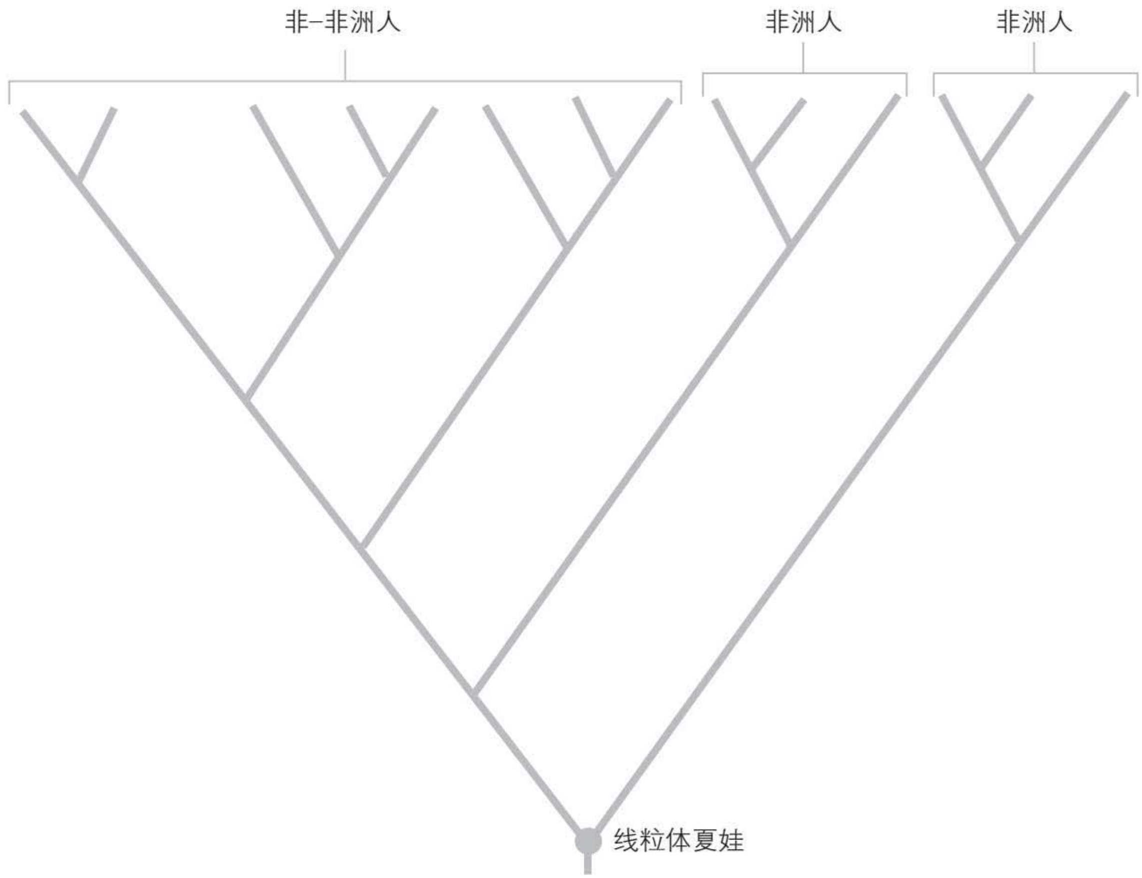
[illegible]DNA[illegible]10[illegible]DNA[illegible]

[illegible]·[illegible]Rebecca Cann[illegible]DNA[illegible]DNA[illegible]

[illegible]1987[illegible]DNA[illegible]“[illegible]DNA[illegible]20[illegible]”[illegible]

[illegible]DNA[illegible]DNA[illegible]C[illegible]T[illegible]C[illegible]DNA[illegible]——[illegible]147[illegible]——[illegible]DNA[illegible]

[illegible]DNA[illegible]DNA[illegible]“[illegible]”[illegible]



[illegible]2 [illegible]DNA[illegible]

[illegible]18[illegible]
10[illegible]
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bouillabaisse profonde[illegible]

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[illegible]1871[illegible]“[illegible]”[illegible]19[illegible]230[illegible]

[illegible]·[illegible]——[illegible]DNA[illegible]

[illegible]

[illegible]*Homo sapiens*[illegible]“[illegible]”[illegible]19[illegible]1856[illegible]Neander Valley[illegible]Neanderthal Man[illegible]19[illegible]“[illegible]”[illegible]1890[illegible]

[illegible]·[illegible]Eugène Dubois[illegible]1858[illegible]1881[illegible]6[illegible]

[illegible]

1890[illegible]*Pithecanthropus erectus*[illegible]

[illegible]10[illegible]

[illegible]20[illegible]20[illegible]20[illegible]30[illegible]20[illegible]50[illegible]*Sinanthropus*[illegible]*Pithecanthropus*[illegible]*Homo erectus*[illegible]·[illegible]Raymond Dart[illegible]20[illegible]20[illegible]

[illegible]1922[illegible]University of the Witwatersrand[illegible]“[illegible]”[illegible]

[illegible]1921[illegible]1924[illegible]

[illegible]500[illegible]1925[illegible]

[illegible]*Australopithecus africanus*[illegible]“[illegible]”[illegible]1[illegible]1.6[illegible]

[illegible]2000[illegible]——[illegible]2000[illegible]——[illegible]——[illegible]

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[illegible]20[illegible]60[illegible]70[illegible]180[illegible]10[illegible]200[illegible]20[illegible]

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[illegible]“[illegible]”[illegible]
500[illegible]*Ardipithecus*[illegible]
[illegible]4[illegible]200[illegible]

[illegible]200[illegible]20[illegible]

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[illegible]·[illegible]

[illegible]——[illegible]

[illegible]DNA[illegible]15[illegible]

[illegible]

——·Gloria Steinem

“”——15

DNA

DNA DNA

mtDNA

β— CD4 2i

DNA

200

22

DNA

mtDNA

mtDNA

DNA Y

50:50 DNA

[illegible]Y[illegible]

[illegible]50:50[illegible]X[illegible]Y[illegible]X[illegible]Y[illegible]X[illegible]Y[illegible]Y[illegible]X[illegible]

Y[illegible]mtDNA[illegible]1.6[illegible]Y[illegible]5000[illegible]A[illegible]B[illegible]AB[illegible]O[illegible]Y[illegible]mtDNA[illegible]Y[illegible]“[illegible]”[illegible]

Y[illegible]Y[illegible]37[illegible]3[illegible]1500[illegible]DNA[illegible]DNA[illegible]

[illegible]Y[illegible]1500[illegible]21[illegible]Y[illegible]

[illegible]Y[illegible]21[illegible]“[illegible]”[illegible]“*SRY*”[illegible]Sex-determining Region of the Y[illegible]Y[illegible]Y[illegible]DNA[illegible]“[illegible]DNA”[illegible]

[illegible]DNA“[illegible]”[illegible]Y[illegible]DNA[illegible]——[illegible]Y[illegible]

[illegible]DNA[illegible]DNA[illegible]50%[illegible]DNA[illegible]

[illegible]50%[illegible]25%[illegible]6%[illegible]·[illegible]Kenneth Kidd[illegible]25[illegible]500[illegible]100[illegible]1000[illegible]1[illegible]1000000000000[illegible]

[illegible]“[illegible]”[illegible]2[illegible]

1[illegible]

[illegible]……

[illegible]·[illegible]·[illegible]1797—1798[illegible]Dorset[illegible]·[illegible]2[illegible]*Kubla Khan*[illegible]*The Rime of the Ancient Mariner*[illegible]“[illegible]”[illegible]“[illegible]”[illegible]

[illegible]3.5[illegible]“[illegible]”[illegible]

[illegible]50[illegible]

[illegible]——[illegible]“[illegible]”[illegible]“[illegible]”[illegible]

[illegible]100[illegible]

[illegible]2[illegible]

[illegible]“[illegible]”[illegible]“[illegible]”[illegible]

[illegible]

[illegible]diverging molecules[illegible]Y[illegible]Y[illegible]Y[illegible]

1994[illegible]·[illegible]Rob Dorit[illegible]Hiroshi Akashi[illegible]·[illegible]20[illegible]70[illegible]DNA[illegible]Y[illegible]“[illegible]”[illegible]38[illegible]Y[illegible]·[illegible]Myriam Casanova[illegible]·[illegible]Gerard Lucotte[illegible]1985[illegible]Y[illegible]Y[illegible]

[illegible]DNA[illegible]DNA[illegible]700[illegible]0—80[illegible]Y[illegible]

[illegible]·[illegible]Michael Hammer[illegible]20[illegible]Y[illegible]

[illegible]

20[illegible]60[illegible]·[illegible]Peter Underhill[illegible]1981[illegible]DNA[illegible]

1991[illegible]·[illegible]-[illegible]mtDNA[illegible]Y[illegible]-[illegible]“[illegible]”[illegible]20[illegible]90[illegible]·[illegible]David Goldstein[illegible]·[illegible]Mark Seielstad[illegible]LiJin[illegible]

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[illegible]DNA[illegible]30[illegible]

[illegible]DNA[illegible]DNA[illegible]DNA[illegible]“[illegible]”[illegible]DNA[illegible]

[illegible]·[illegible]Peter Oefner[illegible]20[illegible]90[illegible]DNA[illegible]“[illegible]”[illegible]High Pressure Liquid Chromatography[illegible]HPLC[illegible]HPLC[illegible]DNA[illegible]·[illegible]Y[illegible]18[illegible]

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dHPLC[illegible]HPLC[illegible]DNA[illegible]DNA[illegible]DNA[illegible]“[illegible]”[illegible]

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[illegible]

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[illegible]DNA[illegible]Y[illegible]“[illegible]”[illegible]mtDNA[illegible]“[illegible]”[illegible]

[illegible]20[illegible]mtDNA[illegible]Y[illegible]mtDNA[illegible]Y[illegible]

□□□□□□□□□□□□□□□□4□□□14□□□□□□□□□□□5.9□□□□□□□□□□□□□□
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□□Y□□□□□□□□□□□□□□□□□□6□□□□□□□□□□□□□□□□□□□□□□□□□□6□□2300□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□1□□——□□□□□□□□10□□□□200□□□□□□□□□□□□□12□□□□□□□□□□□12□28□□

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[illegible]

Y[illegible]

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epicanthic fold

western Eurasian

[illegible]MCiR[illegible]

[illegible]6[illegible]6[illegible]1.83[illegible]5[illegible]6[illegible]1.7[illegible]5[illegible]1.5[illegible]*Homo ergaster*[illegible]

[illegible]2500[illegible]

[illegible]

[illegible]6[illegible]6[illegible]6[illegible]mtDNA[illegible]Y[illegible]“[illegible]—[illegible]”[illegible]Qafzeh[illegible]Skuhl[illegible]10[illegible]Levant[illegible][1][illegible]10[illegible]15[illegible]

[illegible]“[illegible]”[illegible]a curly one[illegible]1.5[illegible]“[illegible]”[illegible]“[illegible]”[illegible]·[illegible]Frank Herbert[illegible]

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[1] [illegible]levare[illegible]——[illegible]

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——[illegible]·[illegible]

[illegible]*The Songlines*[illegible]

[illegible]“[illegible]”[illegible][1][illegible]“[illegible]”[illegible]


亚洲
阿拉伯半岛
印度
太 平 洋
安达曼群岛
非洲
婆罗洲
苏门答腊
新几内亚
爪哇岛
印 度 洋
马达加斯加
澳大利亚

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[1] [illegible]Australasia[illegible]——[illegible]

[illegible]

[illegible]Lake Mungo[illegible]1000[illegible]120[illegible]1[illegible]4.5[illegible]2[illegible]Willandra Lakes[illegible]*Zygomaturus*[illegible]200[illegible]*Procoptodon*[illegible]

[illegible]·[illegible]Jim Bowler[illegible]Mungo3[illegible]3[illegible]1974[illegible]3[illegible]4.5[illegible]Mungo3[illegible]6[illegible]“[illegible]”[illegible]

[illegible]“[illegible]”[illegible]“[illegible]”[illegible]“[illegible]”[illegible]

[illegible]—14[illegible]C—14[illegible]—12[illegible]C—12[illegible]—14[illegible]—14[illegible]N—14[illegible]—14[illegible]—14[illegible]

5700[illegible]4[illegible]—14[illegible]—12[illegible]—14[illegible]5700[illegible]—14[illegible]1.14[illegible]4[illegible]—14[illegible]2%[illegible]3[illegible]1[illegible]

[illegible]4[illegible]—40[illegible]—238[illegible]12.5[illegible]40[illegible]—40[illegible]

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[illegible]4[illegible]·[illegible]Richard Roberts[illegible]Northern Territory[illegible]6[illegible]

[illegible]6[illegible]4[illegible]2[illegible]

[illegible]

[illegible]38[illegible]34[illegible]85%[illegible]500[illegible]

[illegible]2000[illegible]200[illegible]1500[illegible]“[illegible]”[illegible]African Exodus[illegible]·[illegible]10[illegible]20[illegible]

[illegible]15[illegible]Riss glaciation[illegible]10[illegible]13[illegible]12[illegible]7[illegible]5[illegible]2[illegible]

[illegible]6[illegible]

[illegible]·[illegible]Robert Walter[illegible]

[illegible]Horn of Africa[illegible]12.5[illegible]“[illegible]+[illegible]”[illegible]

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[illegible]

[illegible]

[illegible]

M&M’s[illegible]

[illegible]DNA[illegible]Y[illegible]“[illegible]—[illegible]”[illegible]—[illegible]15[illegible]“[illegible]—[illegible]”[illegible]6[illegible]

[illegible]Y[illegible]7.9[illegible]3.1[illegible]M168[illegible]—[illegible]……[illegible]

[illegible]Y[illegible]“[illegible]”[illegible]“[illegible]”[illegible]Y[illegible]“[illegible]”[illegible]Y[illegible]

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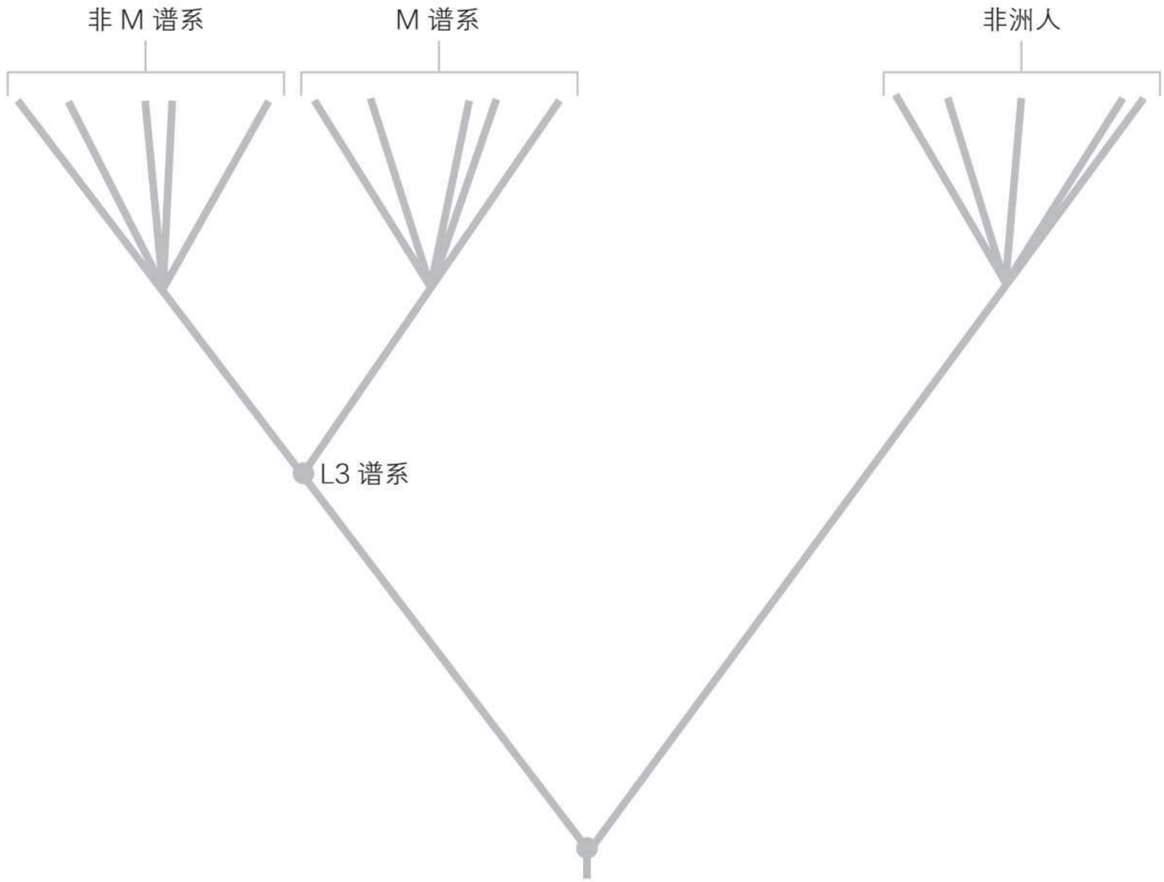
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[illegible]Y[illegible]M168[illegible]L3[illegible]mtDNA[illegible]2[illegible]Y[illegible][1][illegible]3[illegible]Y[illegible]mtDNA[illegible]—[illegible]mtDNA[illegible]60%[illegible]Y[illegible]90%[illegible]—[illegible]mtDNA[illegible]Y[illegible]Y[illegible]

[illegible]M[illegible]007[illegible]M16[illegible]L3[illegible]L3[illegible]M[illegible]·[illegible]—[illegible]Lluis Quintana-Murci[illegible]M[illegible]M[illegible]20%[illegible]100%[illegible]—[illegible]5[illegible]6[illegible]M[illegible]“M[illegible]”[illegible]

[illegible]Y[illegible]M—[illegible]M168[illegible]M168[illegible]M130[illegible]M130[illegible]M[illegible]M[illegible]M[illegible]M130[illegible]Y[illegible]Y[illegible]M130[illegible]Caspian Sea[illegible]M130[illegible]

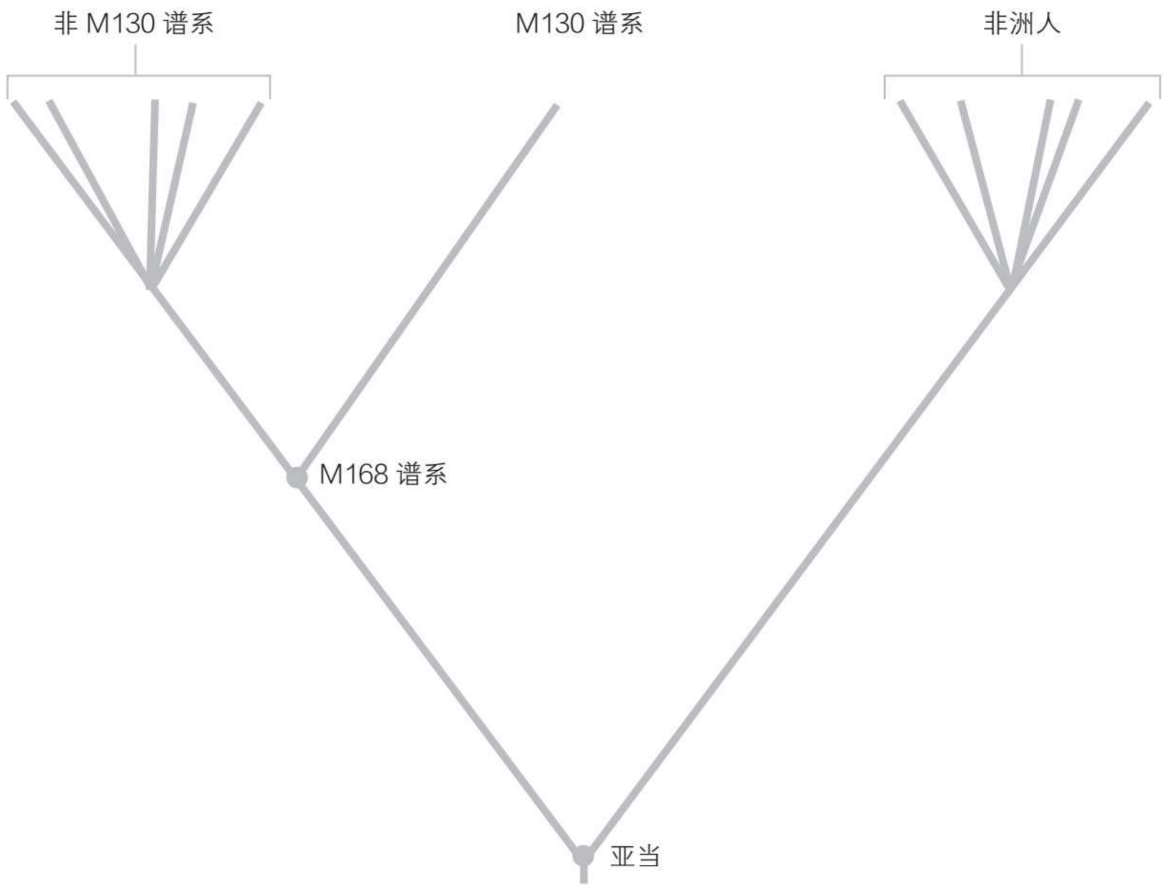
[illegible]5%[illegible]10%[illegible]15%[illegible]60%[illegible]M130[illegible]M130[illegible]M130[illegible]



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[illegible]

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[illegible]20[illegible]20[illegible]70[illegible]8[illegible]20[illegible]50[illegible]20[illegible]70[illegible]20[illegible]80[illegible]2[illegible]1.5[illegible]

[illegible]“[illegible]”[illegible]killer apps[illegible]“[illegible]”[illegible]Late Stone Age[illegible]Upper Palaeolithic[illegible]

Middle Palaeolithic

[1] 3.1 Batadomba Lena 3

ArnhemLand 2 “” Oz[2] “” Lang Rongrien 3.7 Bobongara 4 5 6

“” 10 5 100

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[illegible]Y[illegible]M130[illegible]M130[illegible]4[illegible]

[1] [illegible]FA Hien[illegible]5[illegible]20[illegible]60[illegible]20[illegible]80[illegible]

[2] Oz[illegible]——[illegible]

[illegible][1]

[illegible]300[illegible]
1.5[illegible]Timara[illegible]
[illegible]lmjim[illegible]

[illegible]6[illegible]
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200[illegible]

[illegible]·[illegible]Greg Singh[illegible]

[illegible]

[1] [illegible]Ararat Mount[illegible]“[illegible]”[illegible]

[illegible]

[illegible]

——[illegible]·[illegible]Samuel Johnson[illegible]

[illegible]*Lives of the English Poets*[illegible]

[illegible]Y[illegible]M173[illegible]Y[illegible]A[illegible]C[illegible]M173[illegible]M173[illegible]70%[illegible]M173[illegible]M9[illegible]M89[illegible]Y[illegible]M168[illegible]5[illegible]5[illegible]——[illegible]



[illegible]2 [illegible]

[illegible]M130[illegible]M168[illegible]M130[illegible]M89[illegible]5[illegible]

[illegible]M89[illegible]—[illegible]Y[illegible]
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· Jared Diamond 20 50

5 7 “

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· Richard Klein

shift

20

· Jean Piaget

[illegible]

[illegible]“babbling”[illegible]12[illegible]“[illegible]”“[illegible]”[illegible]·[illegible]Merritt Ruhlen[illegible]——[illegible]

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[illegible]“[illegible]”[illegible]“[illegible]”[illegible]

[illegible]2[illegible]——[illegible]Kanzi[illegible]18[illegible]

2

Sue Savage-Rumbaugh

Taung Baby

[illegible]

[illegible]1000[illegible]——[illegible]

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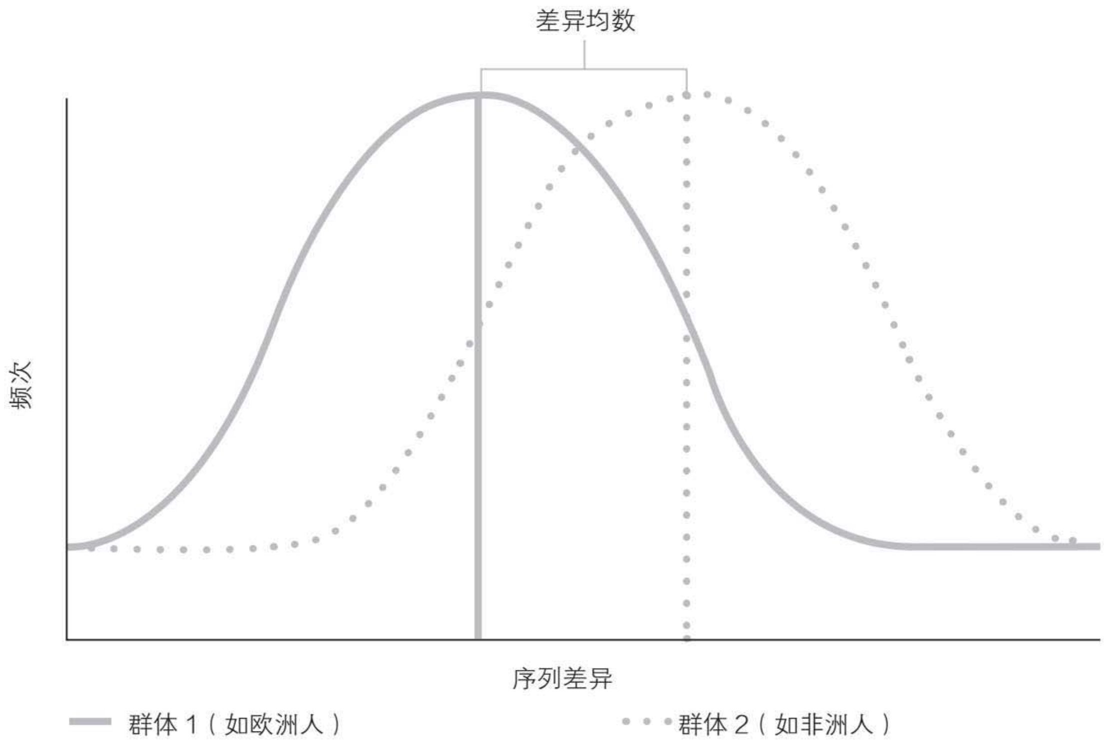
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[illegible]·[illegible]Henry Harpending[illegible]DNA[illegible]——[illegible]mismatch distribution[illegible]5[illegible]



[illegible]5 [illegible]DNA[illegible]mtDNA[illegible]

[illegible]25[illegible]mtDNA[illegible]2[illegible]5[illegible]2[illegible]6[illegible]5[illegible]3[illegible]mtDNA[illegible]

[illegible]“[illegible]”[illegible]DNA[illegible]“[illegible]”[illegible]

[illegible]

[illegible]“[illegible]”[illegible]45[illegible]50[illegible]60[illegible]

[illegible]3[illegible]·[illegible]-[illegible]·[illegible]Albert Ammerman[illegible]1[illegible]—[illegible]—[illegible]

[illegible]5[illegible]——[illegible]·[illegible]Chris Stringer[illegible]“[illegible]”[illegible]

[illegible]“[illegible]”[illegible]

[illegible]5[illegible]5[illegible]——[illegible]5[illegible]

[illegible]7[illegible]DNA[illegible]

[illegible]

[illegible]——[illegible]

[illegible]Bergmann’s rule[illegible]

[illegible]——[illegible]

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[illegible]——[illegible]

[illegible]——[illegible]10[illegible]100[illegible]——[illegible]

[illegible]9[illegible]70%[illegible]

[illegible]“[illegible]”[illegible]——[illegible]4.5[illegible]“[illegible]”[illegible]

[illegible]11[illegible]8[illegible]5[illegible]

[illegible]8[illegible]10[illegible]——[illegible]

[illegible]4.5[illegible]4[illegible]“[illegible]”[illegible]

DNA

[illegible] [illegible]

[illegible][1]

——[illegible]·[illegible]Lewis Carroll[illegible]

[illegible]*Through the Looking Glass*[illegible]

[illegible]Y[illegible]M168[illegible]DNA[illegible]M168[illegible]M168[illegible]5[illegible]“[illegible]—[illegible]”[illegible]“[illegible]”[illegible]ancient cultural revolution[illegible]mtDNA[illegible]Y[illegible]mtDNA[illegible]

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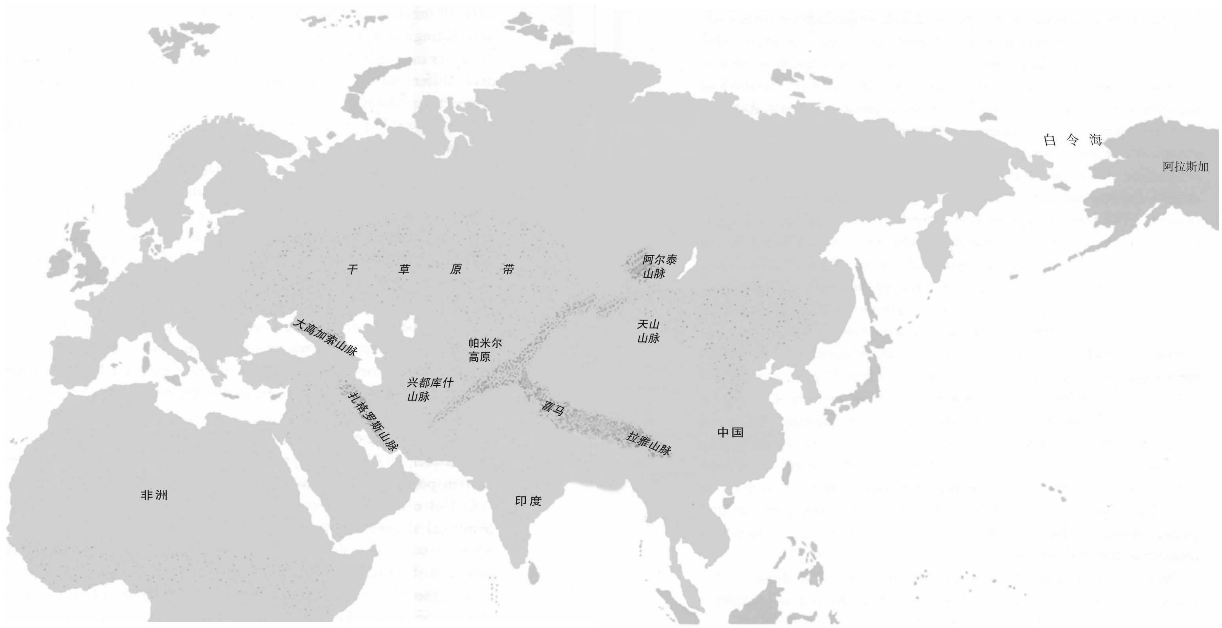
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[illegible]“[illegible]”——[illegible]4.5[illegible]

[1] [illegible]

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[illegible]“[illegible]”[illegible]

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[illegible]Pharaonic sixth cataract[illegible]2000[illegible]

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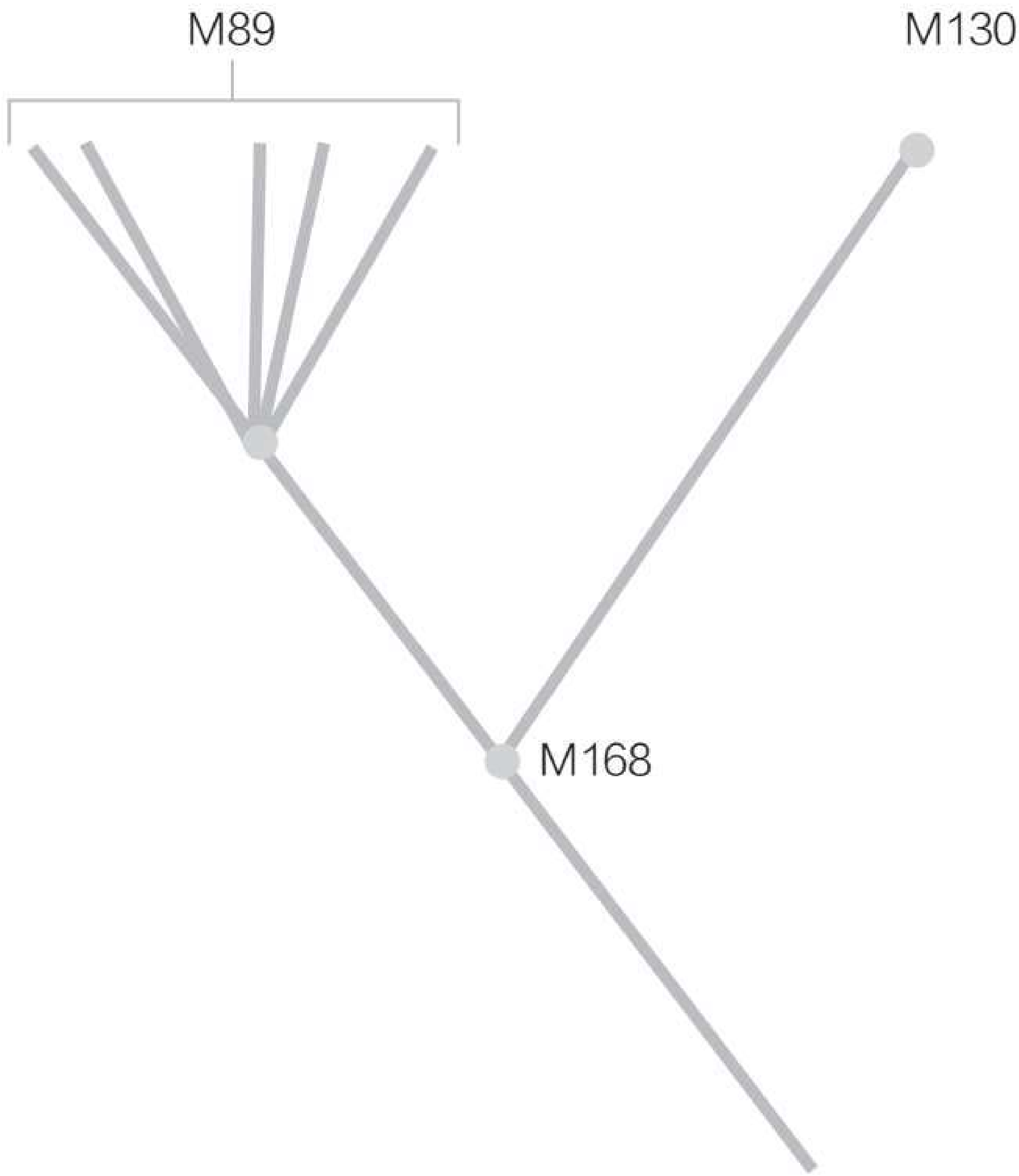
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M89[illegible]M130[illegible]M168[illegible]M89[illegible]Y[illegible]M89[illegible]M130[illegible]M130[illegible]4.5[illegible]



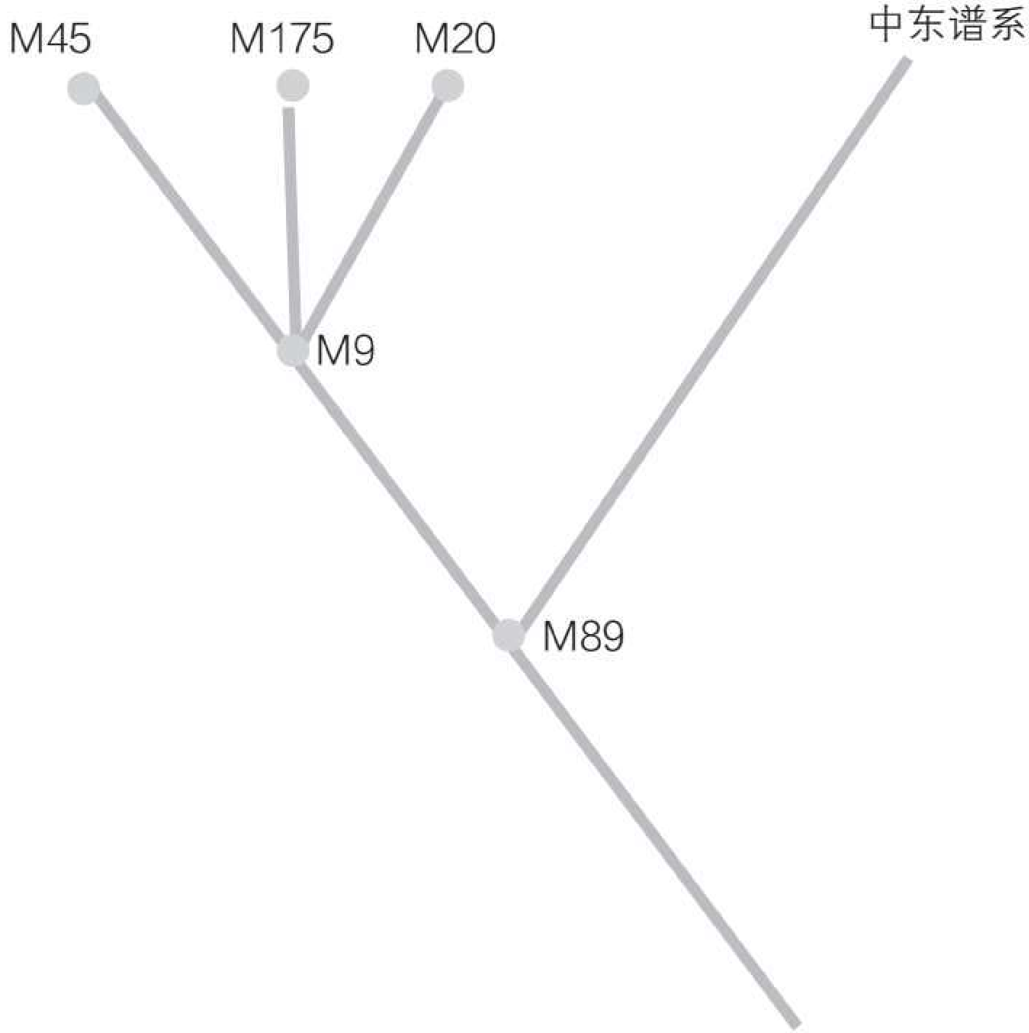
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[illegible]——[illegible]

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[illegible]M89[illegible]M9[illegible]M9[illegible]4[illegible]3[illegible]“[illegible]”[illegible]M9[illegible]



[illegible]7 [illegible]M89[illegible]

[illegible]

[illegible]

[illegible]5000[illegible]7000[illegible]Y[illegible]

[illegible]Y[illegible]M20[illegible]M20[illegible]1%[illegible]2%[illegible]50%[illegible]M20[illegible]3[illegible]DNA[illegible]M[illegible]Y[illegible]M[illegible]DNA[illegible]Y[illegible]5%[illegible]

[illegible]M45[illegible]M45[illegible]3.5[illegible]M45[illegible]“[illegible]”[illegible]——Y[illegible]“[illegible]”[illegible]“[illegible]”[illegible]San Bushmen[illegible]M45[illegible]M45[illegible]

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[illegible]microlith[illegible]

[illegible]“[illegible]”[illegible]will to kill[illegible]

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[illegible]M45[illegible]M45[illegible]Y[illegible]M9 Y[illegible]M9[illegible]Y[illegible]M45[illegible]M9[illegible]

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[illegible]M9[illegible]M175[illegible]30%[illegible]3.5[illegible]M122[illegible]M175[illegible]Y[illegible]60%[illegible]90%[illegible]M175[illegible]

[illegible]100[illegible]10[illegible]4[illegible]6[illegible]

[illegible]15[illegible]25[illegible]25[illegible]

[illegible]“[illegible]”[illegible]4[illegible]1.2[illegible]5[illegible]Y[illegible]M168[illegible]DNA[illegible]

[illegible]50%[illegible]M130[illegible]3.5[illegible]

[illegible]3.5[illegible]5[illegible]·[illegible]-[illegible]Y[illegible]

[illegible]

[illegible]4[illegible]Y[illegible]

[illegible] [illegible]

[illegible]

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[illegible]Richmond district[illegible]“[illegible]”[illegible]New China-town[illegible]1997[illegible]25[illegible]

[illegible]·[illegible]Svante Pääbo[illegible]DNA[illegible]——[illegible]

[illegible]1856[illegible]20[illegible]80[illegible]DNA[illegible]25[illegible]·[illegible]Milford Wolpoff[illegible]DNA[illegible]

[illegible]DNA[illegible]DNA[illegible]

[illegible]DNA[illegible]·[illegible]20[illegible]80[illegible]·[illegible]——[illegible]DNA[illegible]DNA[illegible]·[illegible]Michael Crichton[illegible]*Jurassic Park*[illegible]DNA[illegible]

[illegible]DNA[illegible]DNA[illegible]DNA[illegible]DNA[illegible]DNA[illegible]DNA[illegible]DNA[illegible]DNA[illegible]DNA[illegible]20[illegible]90[illegible]

[illegible]——[illegible]140[illegible]·[illegible]Matthias Krings[illegible]DNA[illegible]105[illegible]4[illegible]DNA[illegible]

[illegible]……[illegible]DNA[illegible]“[illegible]”

[illegible]DNA[illegible]327[illegible]——[illegible]evolutionary divergence[illegible]DNA[illegible]50[illegible]“[illegible]”[illegible]archaic humans[illegible]——[illegible]——[illegible]

[illegible]1.2[illegible]Y[illegible]5[illegible]·[illegible]

[illegible]

1922[illegible]Cabrerets[illegible]Toulouse[illegible]Pech Merle[illegible]·[illegible]Abbé Henri Breuil[illegible]“[illegible]”[illegible]Sistine Chapel[illegible]3[illegible]

[illegible]Chauvet cave[illegible]3.2[illegible]Fumane cave[illegible]3.5[illegible]19[illegible]20[illegible]

[illegible]——[illegible]——[illegible]3.5[illegible]

[illegible]M89[illegible]Y[illegible]4.5[illegible]Bosporus[illegible]1[illegible]

[illegible]

[illegible]Y[illegible]M173[illegible]90%[illegible]M173[illegible]M173[illegible]

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[illegible]M173[illegible]M173[illegible]

[illegible]M173[illegible]Y[illegible]

[illegible]DNA[illegible]DNA[illegible]A[illegible]T[illegible]C[illegible]G[illegible]99%[illegible]tandem repeats[illegible]DNA[illegible]CACACACACA……[illegible]3[illegible]4[illegible]10[illegible]11[illegible]12[illegible]11[illegible]13[illegible]·[illegible]-[illegible]“[illegible]”[illegible]

[illegible]DNA[illegible]

[illegible]20[illegible]30[illegible]“[illegible]”[illegible]

[illegible]microsatellites[illegible]M173[illegible]0[illegible]

[illegible]M173[illegible]3[illegible]M173[illegible]3[illegible]3[illegible]——[illegible]

[illegible]3.8[illegible]3.5[illegible]Aurignacian[illegible]3[illegible]Zafarraya[illegible]2.5[illegible]3[illegible]

[illegible]

[illegible]

[illegible]——[illegible]
50[illegible]30[illegible]

[illegible]

[illegible]·[illegible]Ezra Zubrow[illegible]1%[illegible]
[illegible]1%[illegible]1000[illegible]

[illegible]3[illegible]DNA[illegible]

[illegible]50[illegible]

[illegible]20[illegible]“[illegible]”[illegible]——[illegible]·[illegible]Kristen Hawkes[illegible]——[illegible]——[illegible]

3 Cro-Magnons 1868 165 180 · Erik Trinkaus

3 M173 Y M173 M173 M173 M173 M168 M168 M173 M45 M45 M173

3 4 3

[illegible]——[illegible]

[illegible]Y[illegible]——[illegible]3.5[illegible]

[illegible]

[illegible]Zaliv Kresta[illegible]1[illegible]6[illegible]8[illegible]

[illegible]2001[illegible]11[illegible]50[illegible]70[illegible]9[illegible]6[illegible]——[illegible]

[illegible]

[illegible]2[illegible]4[illegible]2[illegible]2[illegible]

[illegible]·[illegible]Thomas Jefferson[illegible]1787[illegible]*Notes on the State of Virginia*[illegible]

……[illegible]……[illegible]……

[illegible]——[illegible]20[illegible]·[illegible]“[illegible]”[illegible]20[illegible]50[illegible]1.1[illegible]20[illegible]1.2[illegible]

[illegible]20[illegible]70[illegible]80[illegible]——[illegible]1.2[illegible]Meadowcroft Rockshelter[illegible]1.4[illegible]3000[illegible]1.25[illegible]Monte Verde[illegible]1.3[illegible]3.3[illegible]1.3[illegible]

[illegible]1986[illegible]·[illegible]Niede Guidon[illegible]“[illegible]—14[illegible]3.2[illegible]”[illegible]Boqueirão[illegible]1.3[illegible]

[illegible]·[illegible]“[illegible]
[illegible]”

[illegible]1.5[illegible]

[illegible]·[illegible]Doug Wallace[illegible]20[illegible]80[illegible]DNA[illegible]20[illegible]80[illegible]DNA[illegible]1992[illegible]·[illegible]Antonio Torroni[illegible]3.4[illegible]6000[illegible]

[illegible]Y[illegible]1996[illegible]·[illegible]Y[illegible]M3[illegible]90%[illegible]
M3[illegible]50%[illegible]Y[illegible]

[illegible]M3[illegible]
M3[illegible]2000[illegible]Y[illegible]M3[illegible]
M173[illegible]3[illegible]

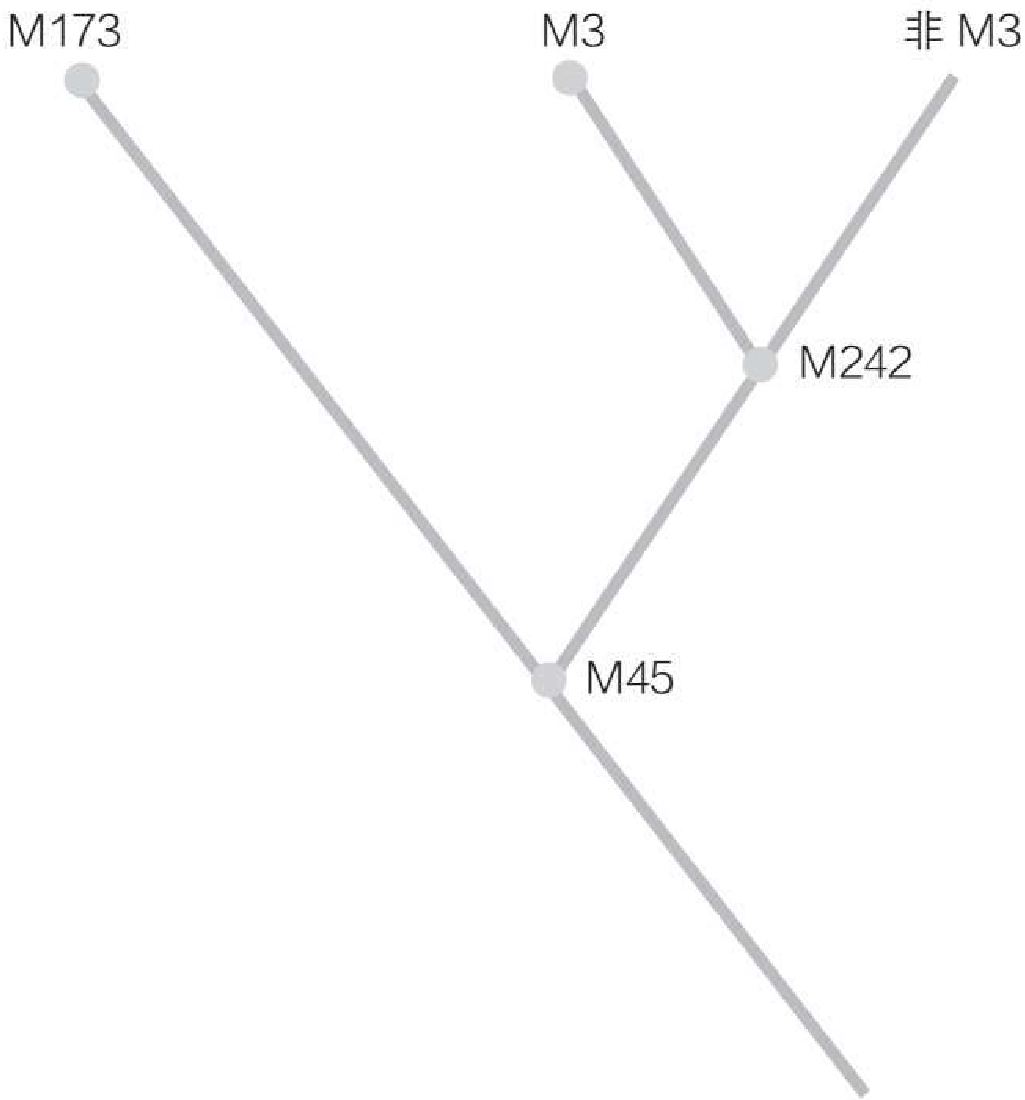
[illegible]1999[illegible]·[illegible]Fabricio Santos[illegible]·[illegible]-[illegible]
[illegible]Chris Tyler-Smith[illegible]·[illegible]Tanya Karafet[illegible]·
[illegible]M3[illegible]92R7[illegible]Y[illegible]
[illegible]92R7[illegible]

[illegible]DNA[illegible]92R7[illegible]

[illegible]M45[illegible]92R7[illegible]Y[illegible]M173[illegible]M3[illegible]4[illegible]1.2[illegible]

[illegible]·[illegible]M45[illegible]M242[illegible]M45[illegible]2[illegible]M3[illegible]M45[illegible]M242[illegible]M3[illegible]2[illegible]M242[illegible]Y[illegible]DNA[illegible]2[illegible]M242[illegible]2[illegible]

[illegible]2[illegible]100[illegible]



[illegible]8 M45[illegible]M173[illegible]M242[illegible]M3[illegible]

[illegible]1.5[illegible]2[illegible]1.5[illegible]“[illegible]”[illegible]2[illegible]1.5[illegible]

[illegible]
[illegible]DNA[illegible]

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[illegible] DNA [illegible] Y [illegible] 10 [illegible] 20 [illegible] 1.5 [illegible]

[illegible] —— [illegible] 1000 [illegible] —— [illegible] 15 [illegible] —— [illegible]

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[illegible] 600 [illegible]·[illegible] Joseph Greenberg [illegible] 20 [illegible] 50 [illegible] - [illegible] - [illegible] - [illegible] - [illegible]

[illegible] —— [illegible]

[illegible] M242 [illegible] M3 [illegible] DNA [illegible] 1.2 [illegible]

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[illegible]Nammu[illegible]Enki[illegible]Ninmah[illegible]

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[illegible]3200[illegible]100[illegible]

[illegible]Captain Cook[illegible]1778[illegible]Resolution[illegible]4[illegible]Earl of Sandwich[illegible]

[illegible]“[illegible]”[illegible]3500[illegible]Marquesas Islands[illegible]1500[illegible]

Society Islands

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the Polynesian odyssey

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[illegible]Tell el Sultan[illegible]25[illegible]Tell[illegible]19[illegible]70[illegible]Jericho[illegible]4000[illegible]20[illegible]50[illegible]·[illegible]Dame Kathleen Kenyon[illegible]·[illegible]

[illegible]1[illegible]—[illegible]3[illegible]5000[illegible]2000[illegible]8500[illegible]4000[illegible]

[illegible]—[illegible]1[illegible]—[illegible]

[illegible]Natufian[illegible]-[illegible]Wadi an-Natuf[illegible]

[illegible]·[illegible]Brian Fagan[illegible]

[illegible]9000[illegible]1000[illegible]·[illegible]V.Gordon Childe[illegible]“[illegible]”[illegible]

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[illegible]—[illegible]1000[illegible]1750[illegible]5[illegible]—[illegible]5[illegible]1[illegible]

[illegible]2[illegible]1[illegible]9000[illegible]

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20[illegible]70[illegible]·[illegible]-[illegible]·[illegible]Alberto Piazza[illegible]·[illegible]Paolo Menozzi[illegible]MTV[illegible]

[illegible]“[illegible]”[illegible]DNA[illegible]-[illegible]——[illegible]“[illegible]”[illegible]

[illegible]-[illegible]“[illegible]”[illegible]-[illegible]-[illegible]20[illegible]20[illegible]90[illegible]·[illegible]Martin Richards[illegible]mtDNA[illegible]mtDNA[illegible]2[illegible]4[illegible]

[illegible]-[illegible]mtDNA[illegible]mtDNA[illegible]mtDNA[illegible]mtDNA[illegible]

[illegible]2000[illegible]·[illegible]OrnellaSemino[illegible]-[illegible]1000[illegible]Y[illegible]Y[illegible]mtDNA[illegible]80%[illegible]M173[illegible]M173[illegible]20%[illegible]Y[illegible]M172[illegible]M172[illegible]

[illegible]·[illegible]David Reich[illegible]3[illegible]1.5[illegible]——[illegible]mtDNA

[illegible]1.6[illegible]

[illegible]Y[illegible]DNA[illegible]“[illegible]”[illegible]-[illegible]“[illegible]”[illegible]Y[illegible]M89[illegible]M173[illegible]M173[illegible]M45[illegible]

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[illegible]7000[illegible]5000[illegible]3500[illegible]2000[illegible]1500[illegible]3000[illegible]

[illegible]M175[illegible]M9[illegible]Y[illegible]M175[illegible]Y[illegible]1[illegible]M122[illegible]M175[illegible]

[illegible]“[illegible]”[illegible]M122[illegible]·[illegible]M122[illegible]1[illegible]

M122[illegible]M175[illegible]M119[illegible]Y[illegible]Y[illegible]20%[illegible]“[illegible]”[illegible]

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[illegible]—[illegible]“[illegible]”[illegible]—[illegible]

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[illegible]·[illegible]William McNeill[illegible]

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□□Uralic□□□□□□□□□□□□Khanty□□□□□Nenets□□□□□
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[illegible]

[illegible]1786[illegible]·[illegible]Sir William Jones[illegible]“[illegible]”[illegible]“[illegible]”[illegible]·[illegible]60[illegible]

[illegible]140[illegible]

[illegible]——[illegible]——[illegible]DNA[illegible]

[illegible]·[illegible]-[illegible]1988[illegible]42[illegible]

[illegible]

[illegible]-[illegible]-[illegible]

[1] [illegible]·[illegible]·[illegible]1964[illegible]Mary Poppins[illegible]——[illegible]

[illegible]

[illegible]·[illegible]200[illegible]“[illegible]”[illegible]

[illegible]·[illegible]“[illegible]”[illegible]20[illegible]20[illegible]“[illegible]”[illegible]·[illegible]Marija Gimbutas[illegible]20[illegible]70[illegible]6000[illegible]proto-Indo-European[illegible]PIE[illegible]Corded Ware People[illegible]kurgan[illegible]20[illegible]“[illegible]”[illegible]Scythians[illegible]

[illegible]“ox”[illegible]“uksan”[illegible]“okso”[illegible]

[illegible]·[illegible]Colin

Renfrew [illegible]1987[illegible]*Archaeology and Language*[illegible]9000[illegible]“[illegible]”[illegible]

[illegible]“[illegible]”[illegible]Y[illegible]Y[illegible]

[illegible]Irish Gaelic[illegible]1500[illegible]Rig Veda[illegible]20[illegible]20[illegible]·[illegible]Indns Valley[illegible]·[illegible]Mohenjo Daro[illegible]Harappa[illegible]3500[illegible]2000[illegible]1500[illegible]1000[illegible]

[illegible]2000[illegible]

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[illegible]-[illegible]M20[illegible]3[illegible]M20[illegible]50%[illegible]

M17[illegible]40%[illegible]1[illegible]1.5[illegible]M17[illegible]M173[illegible]M17[illegible]

[illegible]M17[illegible]35%[illegible]M17[illegible]10%[illegible]M17[illegible]1[illegible]

[illegible]M17[illegible]5%[illegible]10%[illegible]M17[illegible]M17[illegible]M17[illegible]

[illegible]Y[illegible]M172[illegible]

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· *The Rise and Fall of the Third Chimpanzee* “ ”

Burushaski

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[illegible]1[illegible]7000[illegible]“[illegible]”[illegible]

[illegible]-[illegible]M172[illegible]M172[illegible]90%[illegible]Sumerian[illegible]“[illegible]”[illegible]

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[illegible]·[illegible]“[illegible]”[illegible]-[illegible]1988[illegible]“[illegible]”[illegible]

[illegible]·[illegible]1963[illegible]*Language of Africa*[illegible]

[illegible]k[illegible]t[illegible]·[illegible]*The Origin of Language*[illegible]Eurasiatic[illegible]Nostratic[illegible]

[illegible]2[illegible]Y[illegible]M9[illegible]M9[illegible]“[illegible]—[illegible]”[illegible]Dene-Caucasian[illegible]

[illegible]-[illegible]—[illegible]—[illegible]·[illegible]John Bengtson[illegible]—[illegible]1[illegible]

[illegible]—[illegible]-[illegible]M130[illegible]M130[illegible]M130[illegible]-[illegible]-[illegible]M130[illegible]5000[illegible]1[illegible]

[illegible]·[illegible]—[illegible]—[illegible]-[illegible]

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[illegible]500[illegible]

[illegible]6000[illegible]2[illegible]

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[illegible]M17[illegible]

[illegible]20[illegible]·[illegible]·[illegible]Jonathon Marks[illegible]“[illegible]”[illegible]

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[illegible]Y[illegible]
Y[illegible]50:50[illegible]

[illegible]Y[illegible]Y[illegible]Y[illegible]15[illegible]

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[1] [illegible]——[illegible]

[2] [illegible]

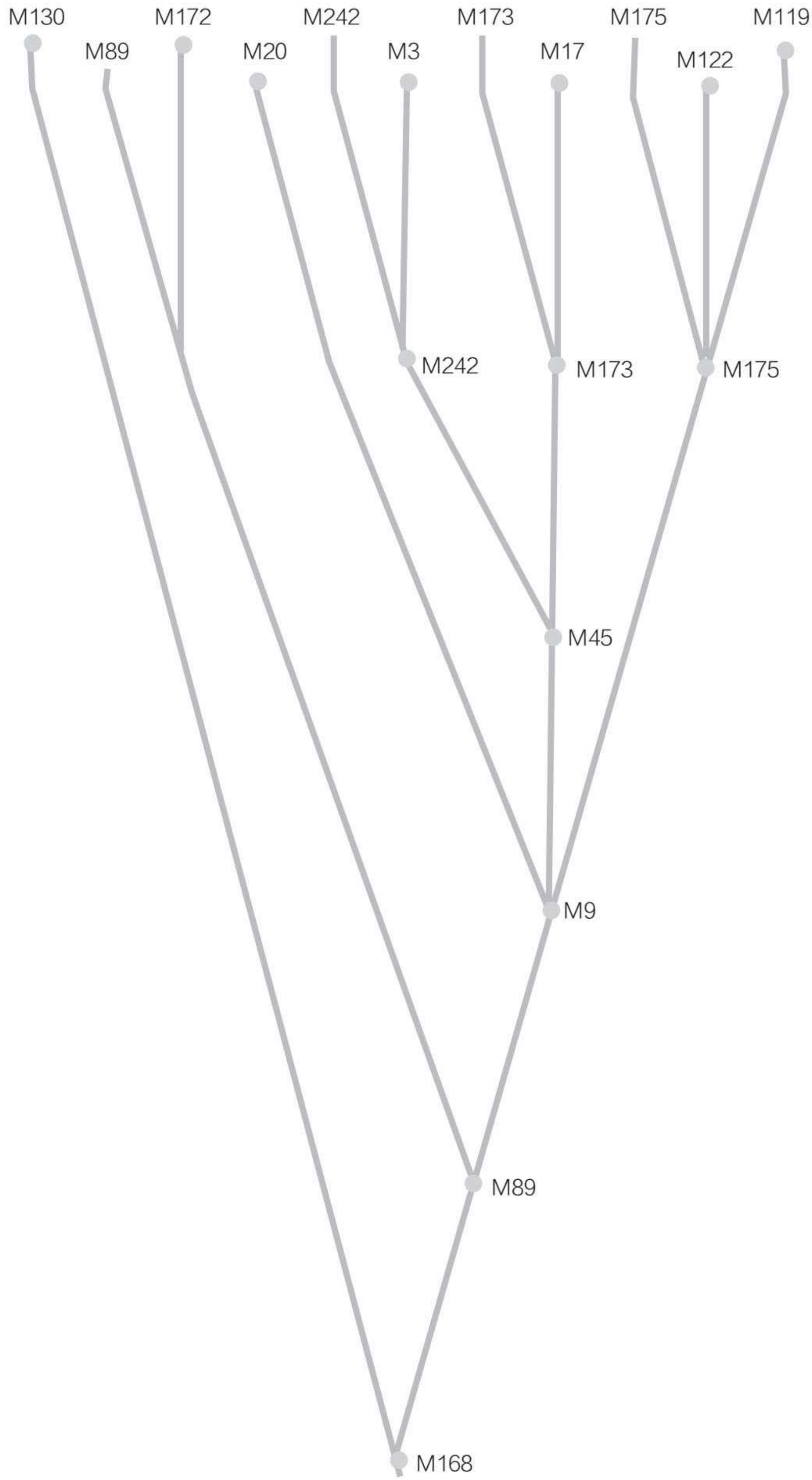
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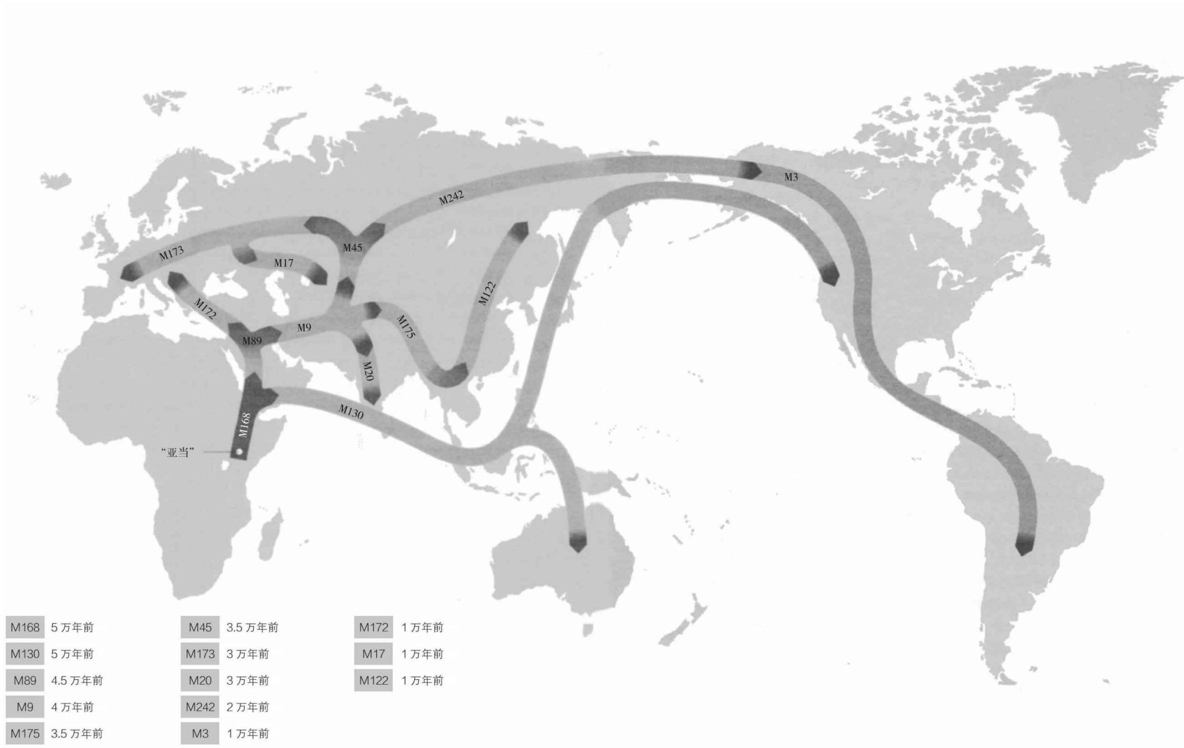
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[illegible]Y[illegible]Y[illegible]

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[illegible]19[illegible]

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[illegible]10[illegible]2000[illegible]2.814[illegible]1990[illegible]13%[illegible]2000[illegible]5[illegible]63[illegible]

[illegible]680[illegible]“[illegible]”[illegible]“[illegible]”[illegible]“[illegible]”[illegible]25%[illegible]/[illegible]/[illegible]/[illegible]81%[illegible]/[illegible]2000[illegible]

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